

WHAT IS CLAIMED IS:

1. A reactive material comprising a metal foam and a polymer.
- 5 2. The reactive material of claim 1, wherein the metal foam comprises a metal selected from the group consisting of, or an alloy comprising one or more of, molybdenum, osmium, titanium, boron, manganese, magnesium, aluminum, and nickel.
- 10 3. The reactive material of claim 1, wherein the metal foam comprises aluminum.
4. The reactive material of claim 1, wherein the metal foam consists essentially of aluminum.
- 15 5. The reactive material of claim 1, wherein the polymer is at least partially halogenated.
6. The reactive material of claim 1, wherein the polymer is formed from one or more monomers selected from the group consisting of fluoroalkyl esters of acrylic acid, tetrafluoroethylene, chlorotrifluoroethylene, dichlorodifluoroethylene, hexafluoropropylene, and vinylidene dichloride, vinylidene difluoride.
- 20 7. The reactive material of claim 1, wherein the polymer comprises polytetrafluoroethylene.
8. The reactive material of claim 1, further comprising a material selected from the group consisting of finely divided metal particles, finely divided metal oxide particles, and mixtures thereof.
- 25 30 9. The reactive material of claim 8, wherein the finely divided metal particles comprise aluminum.

10. The reactive material of claim 8, wherein at least a portion of the finely divided metal particles and the finely divided metal oxide particles are in the form of a thermite mixture.

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11. The reactive material of claim 10, wherein the thermite mixture comprises aluminum particles and iron oxide particles.

12. Ordnance comprising the reactive material of claim 1.

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13. A method of making a reactive material comprising a polymer and a metal, said method comprising
providing the metal as a metal foam; and
imbibing the polymer into a void volume of the metal foam.

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14. The method of claim 13, wherein a void volume of the metal foam is held under vacuum for at least a portion of a period during which the polymer is imbibing into the metal foam.

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15. The method of claim 13, wherein the polymer is imbibed into the metal foam under application of positive pressure for at least a portion of a period during which the polymer is imbibing into the metal foam.

16. The method of claim 13, wherein the polymer imbibed comprises a powder.

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17. The method of claim 13, wherein the polymer is imbibed into the metal foam in the form of a polymer melt.

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18. The method of claim 13, wherein the metal foam comprises a metal selected from the group consisting of, or an alloy comprising one or more of, molybdenum, osmium, titanium, boron, manganese, magnesium, aluminum, and nickel.

19. The method of claim 13, wherein the metal foam comprises aluminum.
20. The method of claim 13, wherein the metal foam consists essentially of
5 aluminum.
21. The method of claim 13, wherein the polymer is at least partially halogenated.
22. The method of claim 13, wherein the polymer is formed from one or more
10 monomers selected from the group consisting of fluoroalkyl esters of acrylic acid, tetrafluoroethylene, chlorotrifluoroethylene, dichlorodifluoroethylene, hexafluoropropylene, vinylidene dichloride, and vinylidene difluoride.
23. The method of claim 13, wherein the polymer comprises
15 polytetrafluoroethylene.
24. The method of claim 13, wherein a material selected from the group consisting
of finely divided metal particles, finely divided metal oxide particles, and
mixtures thereof are also imbibed into a void volume of the metal foam.
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25. The method of claim 24, wherein the finely divided metal particles comprise
aluminum.
26. The method of claim 24, wherein the finely divided metal particles and the
25 finely divided metal oxide particles form a thermite mixture.
27. The method of claim 26, wherein the thermite mixture comprises aluminum
particles and iron oxide particles.
- 30 28. Ordnance comprising a reactive material made by the method of claim 13.